The MEASURE OF OUR LAND

PA-128

Soil Conservation Service
U. S. Department of Agriculture

FOREWORD

WE ARE CONFRONTED with a grave national emergency. It may last many years. If our land is called on for all-out production of food, feed, and fiber, it will surely suffer from overcropping and resultant erosion, unless necessary protection is provided. We need to examine the situation—take a careful, searching look at the land all over the country in order to arm ourselves with precise knowledge about the condition of the land and what we must do to keep it productive.

To do this we must, as speedily as possible, complete the land-capability inventory now under way. We must have the land facts this inventory will reveal, for purposes of blueprinting our farms and ranches for soil and water conservation accurately, and on a well-balanced basis. In other words, this inventory will show what the land can do within the limitations of economy and efficiency when treated according to kind and need.

We can get these facts only through an acre-by-acre examination of our land by men technically trained and experienced in gathering such information.

Such an inventory, providing these facts so vital to our agriculture, and the many other segments of our national structure, in a readily usable form is now being made on a Nation-wide scale by the Soil Conservation Service. This type of land survey was developed by the Soil Conservation Service for its particular needs; but it can be used by other action agencies, civil or military.

If you are a farmer in the Southeast, you need to plan for the crops that precisely fit your land. You need also a sound basis for deciding what land you will use for clean-tilled crops, what for pasture, and what for trees. If you grow sugarcane in Louisiana, you may not have as much of the best cane land as you would like, and, under such circumstances, you will want to use different varieties—adaptable varieties—and adaptable cultural practices for best results. The corn-hog farmer of the Middle West, the vegetable grower of the Imperial Valley in California, the dairy farmer of the Northeast—farmers and ranchers everywhere, in fact—can profit from exact information about the capability of their lands and their varying needs (in the way of appropriate soil conservation measures). The land-capability inventory will help each operator use his land efficiently and will help soil conservation technicians assisting soil conservation districts to develop accurate acre-by-acre blueprints for sound conservation of each farm.

Land facts are needed, too, for much land that is not classified as farm land. Some 200 million acres of forests and other nonfarm land are owned privately. And more than 400 million acres, primarily forests, parks, and grazing land, are in public ownership under the control of local or Federal agencies. Some of this nonfarm land provides valuable grazing and wildlife habitats, and some is properly reserved for its recreational and esthetic values. Facts about land and its capability help both private landowners and public officials in their efforts to safeguard and prudently use this indispensable resource.

H. H. BENNETT,

January 26, 1951. *Chief, Soil Conservation Service.*

THE MEASURE OF OUR LAND

By J. G. Steele, *soil scientist, Soil Conservation Service*

IN THE CONTINENTAL United States there are not quite 2 billion acres of land. Some of it is high, rough mountainous land of nonarable character. Some is low marsh land that cannot be drained in a practical way. In between is much land that is well suited for cultivated crops and even more that cannot be cultivated safely because of erosion but that can be successfully used for pasture, range, forest, and wildlife.

But not all of this good land is available for farms or forests. Highways, railroads, and airfields take up land. So do cities and towns—and many of them are spreading out more and more over good farm land. Golf courses, ball parks, playgrounds, cemeteries, factories, all occupy land, some of them land that was once in good farms.

LAND-CAPABILITY INVENTORY NEEDED

Farms and ranches now occupy a little more than a billion acres, or slightly less than 60 percent of the continental area of United States. Some of the land within these approximately 6 million farms and ranches can be cultivated safely, but a great deal of it is too steep and erodible, too wet, too shallow, or in some other way is not suited for cultivation. As nearly as can now be judged, there are about 460 million acres in the entire country well suited for long-time cultivation, and a large part of this must be protected from erosion. This figure is an estimate, based on a land-capability inventory of about one-fourth of our farm and ranch land. To give the exact measure, all the land should be inventoried.

In April 1949, a few more than 28 million people were living on farms in the United States, or about 1 out of 5 of the total population. This compares with 1 out of 3 in 1920. Increased efficiency in farming, however, accompanied the decline in farm population. Farm production was higher than ever before during the war and postwar years of the 1940's.

Here in the United States we produce enough of the major crops for ourselves and some for export. This means that on the average one person on our farms produces enough food and other farm products to supply four other people. These other four need not use up their energy producing food for themselves. They work in industry, business, the service occupations, and so on. The automobiles, combine harvesters, refrigerators, and many other products of their work make farm life easier today than it was for our grandfathers. The machines and materials produced by industry help keep our Nation strong and secure. The goods produced and the services rendered by farmers, town dwellers, and city people all fit together to give us the high standard of living that we have become accustomed to and enjoy.

Thus everyone has a right to be concerned about how much good land we have in this country and about the way farmers and ranchers take care of their land. Everyone is concerned because some farmers, fortunately fewer of them each year, are still using up land needlessly in order to get high yields—or sometimes just mediocre yields.

In our concern about the way land is used, however, we continue to respect the farmers' and ranchers' rights of land ownership. If you are a farmer, you decide what kind of a farm you want and what crops you want to grow. Maybe you like to run a dairy farm and your neighbor likes to grow truck crops. The public interest in a farmer's land is not in such details as these. Many people are coming to believe, however, that he should have whatever help he needs to keep his land productive for the years to come. Technical help

if he needs it, they say, certainly should be available. They believe this because the value of a farm can be figured in more than one way.

If you are a farmer, your farm has a certain value in dollars to you—because you produce food and other materials on it, for sale or for home use, or because you can sell it. Your farm and the other producing farms also have a value to society and to the Nation as a whole that is priceless. Whenever land is damaged because of erosion or other deterioration, the Nation loses valuable productive capacity. Farms as well as factories must work efficiently to produce materials of defense.

FACTS ABOUT LAND WILL HELP

If you are a farmer you are concerned, along with the rest of us, about the land of the Nation. You are also concerned in a special way with the land on your own farm. No doubt you know a good deal about some of the different kinds of land that you are farming, but do you know the main good and bad points about all—each kind—of your land? Stream bottom lands, for example, are easy to recognize. Some are sandy, others are moderately sandy or loamy, and some are heavy (clayey). Some are well-drained, others are naturally wet. How about your uplands? Some are moderately sloping, some steep, some nearly level. Some soils take in water readily, some do not. You can think of many variations of land. It takes an expert to sort them out and help you decide which are really different in a way that counts under the conditions you use them.

A trained, experienced technician, after thorough study on the ground, can appraise and describe the many different kinds of land that should be used or treated in different ways. Some land is nearly level, some is sloping, and some is steep. Some of the level land is good for cultivation, some may be too wet. Two or three different kinds of soil may each occur on nearly level land, on gentle slopes, on moderate slopes, and on slopes so steep they cannot be cultivated safely. Often there are four or five different kinds of land on a single farm, or more if the land is unusually variable.

To figure out the best uses for each kind of land on

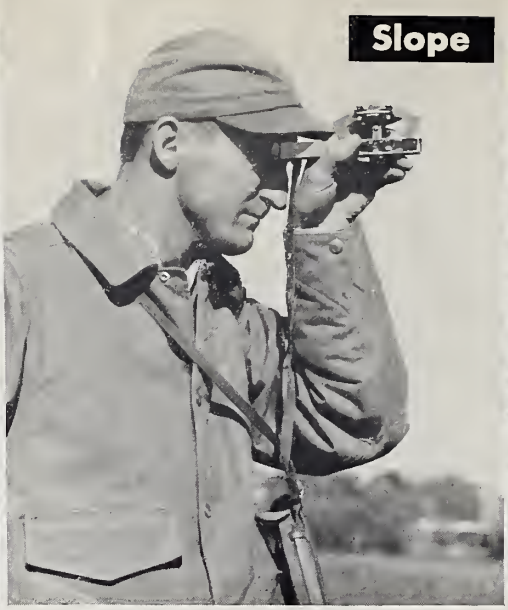
Some of our nearly 2 billion acres of land in the United States is high rough mountainous land. Some is low marsh or swamp land. In between we have much land that is good for crops and more that cannot be cultivated safely but is good for grazing, forestry, or wildlife.

Productive farms have a value to society and to the Nation that is priceless.

one farm takes a lot of time and study. To select the best practices for each kind takes more study and time. The farmer who would do this by himself must keep informed about the work of various experiment stations and study the experiences of a great many other farmers. It is more convenient for him to follow the technical guidance of someone who is especially trained and experienced in this kind of thing. These are jobs on which it pays him to engage qualified help, the same as he does when his radio needs repair or one of his electric motors needs rewinding.

Just now let's consider the job of finding out about land, what it will do best, and what it needs in the way of management and conservation treatment. A land-capability inventory helps a farmer know and remember what kinds of land he has. Land specialists have worked out the methods for making such an inventory; they are making it on farms in more than 2.300 soil conservation districts, each of which is under the direction of a governing board of farmers. Most of the districts have called on the Soil Conservation Service for technicians to help the farmers plan and carry out soil conservation work.

Often the land specialist is the first of the technical men serving the district to visit a farm. Perhaps he comes even before the farmer applies to his district for help. In this way the other technical men are prepared with land information when the farmer wants help from his district. The soils man carries an auger, or sometimes a spade, to get down deep into the subsoil



The soils man bores with an auger to find out the kind of topsoil and subsoil. He uses an adjustable hand level to measure steepness of slope. He studies the thickness of the remaining topsoil, the amount of subsoil turned up in plowing, and the number of rills or gullies so as to judge the degree of soil erosion.

so that he can examine the soil sufficiently to be able to find out the good and the bad points about it. He doesn't map land just on the surface alone; he looks under the surface to find such things as good friable clay subsoil, dense impervious subsoil, gravelly droughty subsoil, and other variations that can be found only by this painstaking examination.

You can't tell what is inside a book by just looking at the cover. You must open it, read it. Likewise you can't just look at the topsoil and tell the kind of land. You must look inside, examine the layers that are under the surface, and interpret what you find.

Even for the farmers who have studied their soils, the soils man's findings usually help to explain some of the things they have seen from year to year without exactly comprehending what they saw, or thought they saw. Why the crops grow well in some places and not so well in others, for example; and why the crops on some spots slow up or stop growing when dry weather comes.

The soils man also carries a small adjustable hand level that he uses to measure the steepness of slope, and, of course, a map on which to write down what he finds out about both the soil and its slope. This base map is an aerial photograph that was taken on a clear day from several thousand feet in the air. It shows the roads, buildings, streams, forests, and various other features. Usually the individual fields can be recognized. The soils man will also put on the map the condition of erosion wherever there has been any erosion, as well as outstanding poor drainage and excessive salt (alkali) content.

A farmer gets from his land-capability map useful information about the land he is farming as well as his idle lands, gullies, etc. He can keep the map in a handy place with his other records and refer to it from time to time. Colors on the map tell him the suitability of his land for cultivation and for other uses. Just what the colors and symbols shown on the map mean is explained in this bulletin. Brief descriptions that go with the map tell something about each different kind of land: Texture and depth of soil, steepness of slope, amount of soil erosion, etc. They also tell about suitable cropping practices, and the principal practices needed for erosion control, water control, and other conservation features of land management.

The land-capability inventory gives only part of the information needed in making a farm conservation plan. After the map is made, those portions of it should be indicated where strip cropping, contour farming, terraces, or diversions, or other suitable conservation practices are needed. This calls for the help of a man who is both trained and experienced in planning conservation work on farms. Actual lay-out of the practices also can be done quickest and most effectively by someone who has done it before. The soil conservation district arranges these services for farmers and ranchers through the Soil Conservation Service and other agencies.

EIGHT CLASSES OF LAND

Several different colors appear on the land-capability maps. There may be as many as eight colors. Each color tells you about the land: Whether it is suited for cultivation or not, and the general degree of difficulty or risk that is involved in its safe use without damage. Each color shows one of eight classes of land that are called land-capability classes. The drawing on page 10 shows the safe uses of the land of each class, and the color that represents the class. The classes are sometimes distinguished by roman numerals as well as by the standard colors.

Classes I, II, and III include the land that is suited for regular cultivation, and Class IV the land that can be safely cultivated only occasionally, that is, in a limited way. Classes V, VI, and VII include the land that is not suited for cultivation but is suited for grazing or forestry. Class VIII is reserved for the land that is not suited for cultivation, grazing, or forestry. Some of it is good land for wildlife, some is valuable for watershed protection, and some of it is good for recreation.

Here are descriptions of the eight land-capability classes:

Class I is very good land from all points of view. It is nearly level and does not wash readily. The soil is deep and easy to work. It holds water well and is at least fairly well supplied with plant nutrients. Such land is scarce in many localities. It is not present at all on some farms. Anyone who is fortunate enough to have some Class I land can use it safely in almost any way that he chooses. Of course, it should be managed so that a good supply of plant nutrients and good physical condition are maintained.

The other classes are farmed with greater difficulty or greater risk than the Class I land.

Class II is good land from every standpoint, but cer-

Land-capability classes show how much difficulty or risk is involved in using land. Class I land is level, not subject to erosion, and easy to farm. Classes II and III contain the land suited for cultivation but limited by slope, sandy soil, tight subsoil, or some other permanent feature. Class IV land requires extreme care if cultivated. Land in Classes V, VI, and VII is suited for grazing or for forestry. Permanent limitations of the land are greater the higher the class number. Class VIII land is not suited for cultivation, grazing, or forestry.

Fields of moderately sloping Class III land in the foreground and on the opposite hill are protected by contour strip cropping and a crop rotation. The Class IV land at the left is too steep to be used for corn more than once in 5 or 6 years. Class VI land above the strip-cropped field is too steep for cultivation but will make good pasture.

tain physical conditions make it not quite so good as Class I land. The slope may be just steep enough to make water run off at a speed which will carry away soil. Some Class II land is naturally wet and requires drainage. Some has not quite as good water-holding capacity as Class I land. Each of these deficiencies either limits the use of the land to some extent or requires some special attention year after year. Even a single farm can have two or more variations of Class II land. These variations will be explained later.

Since Class II land has some moderate, natural use limitation, some special treatment is called for, such as easily applied conservation practices like contouring, protective cover crops, simple water management, crop rotations, and the use of fertilizers.

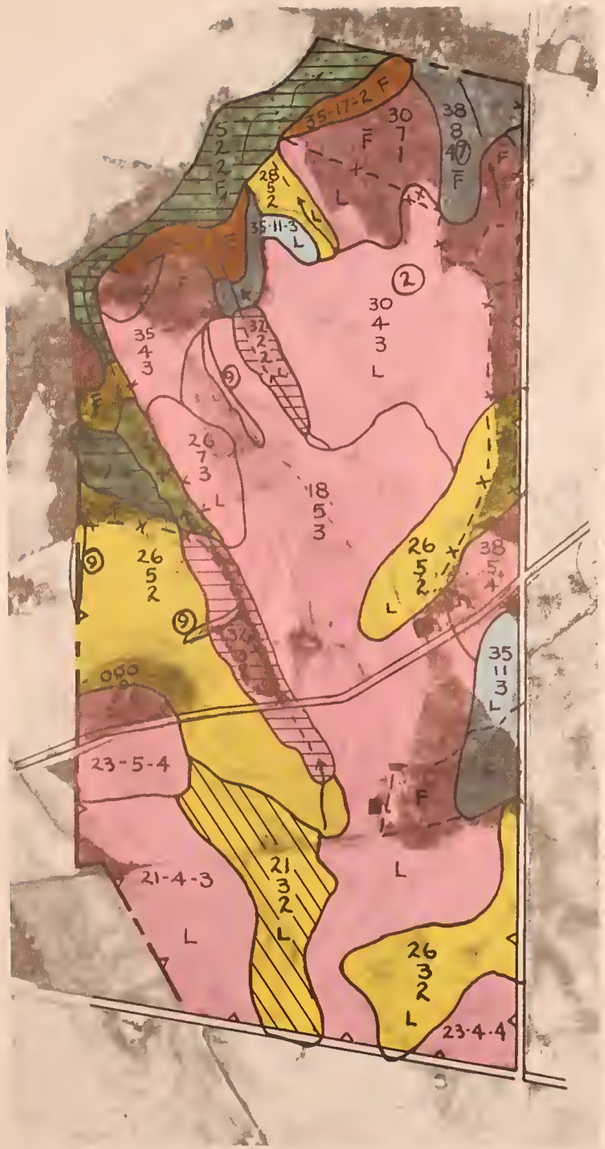
Class III is moderately good land for cultivation. It is more limited in use than Class II land by reason of one or more natural features. It can be used regularly for crops but, because of these natural restrictions, intensive treatment of some kind is called for. Several variations occur in Class III, as they do in Class II. Some Class III land is moderately sloping and must have intensive care to control erosion if used for crops in a regular rotation. Another variation of Class III land calls for water management because of poor drainage. In some nonirrigated, semiarid regions there is no Class I or II land because of the natural scarcity of moisture. The best land in such localities is Class III because the moisture supplied by rain and snow is barely enough to grow crops, even under the most careful management.

When you see red on a land-capability map you know at once that stands for Class III land and also that the best of farming methods are required. A land-capability map tells at a glance how much and what variety of Class III land is on a farm, and just where it occurs.

Class IV land is good enough for occasional cultivation under careful management, but it is not suited for regular production of cultivated crops. A large

Outline of the land-capability classification

Major land use suitability (Broad grouping of limitations)	Land-capability class (Degree of limitations)		Land-capability subclass (Grouping of land-capability units according to kind of limitation. This table shows examples only.)	Land-capability unit (Land-management groups based on permanent physical characteristics. This table shows examples only.)
Suited for cultivation	I	Few limitations. Wide latitude for each use. Very good land from every standpoint.		
	II	Moderate limitations or risks of damage. Good land from all-around standpoint.		
	III	Severe limitations or risks of damage. Regular cultivation possible if limitations are observed.	Limited by hazard of water erosion; moderately sloping land.	Moderately sloping, slightly acid soils on limestone.
				Moderately sloping, highly acid soils on sandstone or shale.
			Limited by excess water; drainage needed for cultivation.	
			Limited by low moisture capacity; sandy land.	
	IV	Very severe limitations. Suited for occasional cultivation or for some kind of limited cultivation.		
Not suited for cultivation	V	Not suited for cultivation because of wetness, stones, overflows, etc. Few limitations for grazing or forestry use.	Grouping of sites according to kind of limitation.	Sites significant in management of ranges, pastures, forests, etc.
	VI	Too steep, stony, arid, wet, etc., for cultivation. Moderate limitations for grazing or forestry.		
	VII	Very steep, rough, arid, wet, etc. Severe limitations for grazing or forestry.		
	VIII	Extremely rough, arid, swampy, etc. Not suited for cultivation, grazing, or forestry. Suited for wildlife, watersheds, or recreation.		



U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE — SOUTHEASTERN REGION
H. H. Bennett, Chief — T. S. Buie, Regional Conservator

LAND-CAPABILITY MAP

FOR Jonah and Elijah Blackwell (2) FARM NO. SC-SCD-3-C-1110

DATE 7-22-48 PHOTO SHEET NOS. OW-3-109

CLASS

Class I. Well-drained productive bottom land. (2-1-+)

Class IIe. Smooth to moderately sloping gray sandy land with slight erosion. If cultivated, needs terracing, outlets, and a strip rotation with half the area in close-growing crops such as small grain and lespedeza. Needs additional potash and organic matter for best crop production. (26-3-2, 26-5-2, 28-5-2)

Class IIe. Smooth to moderately sloping brownish-red sandy clay land. If cultivated, needs terracing, outlets, and a crop rotation with half the area in close-growing crops such as small grain and lespedeza. (21-3-2)

Class IIIe. Sloping brownish-red sandy clay land with slight to moderate erosion. If cultivated, needs two-thirds of the area in close-growing crops such as small grain and lespedeza. (18-5-3, 40-5-3, 21-4-3, etc.)

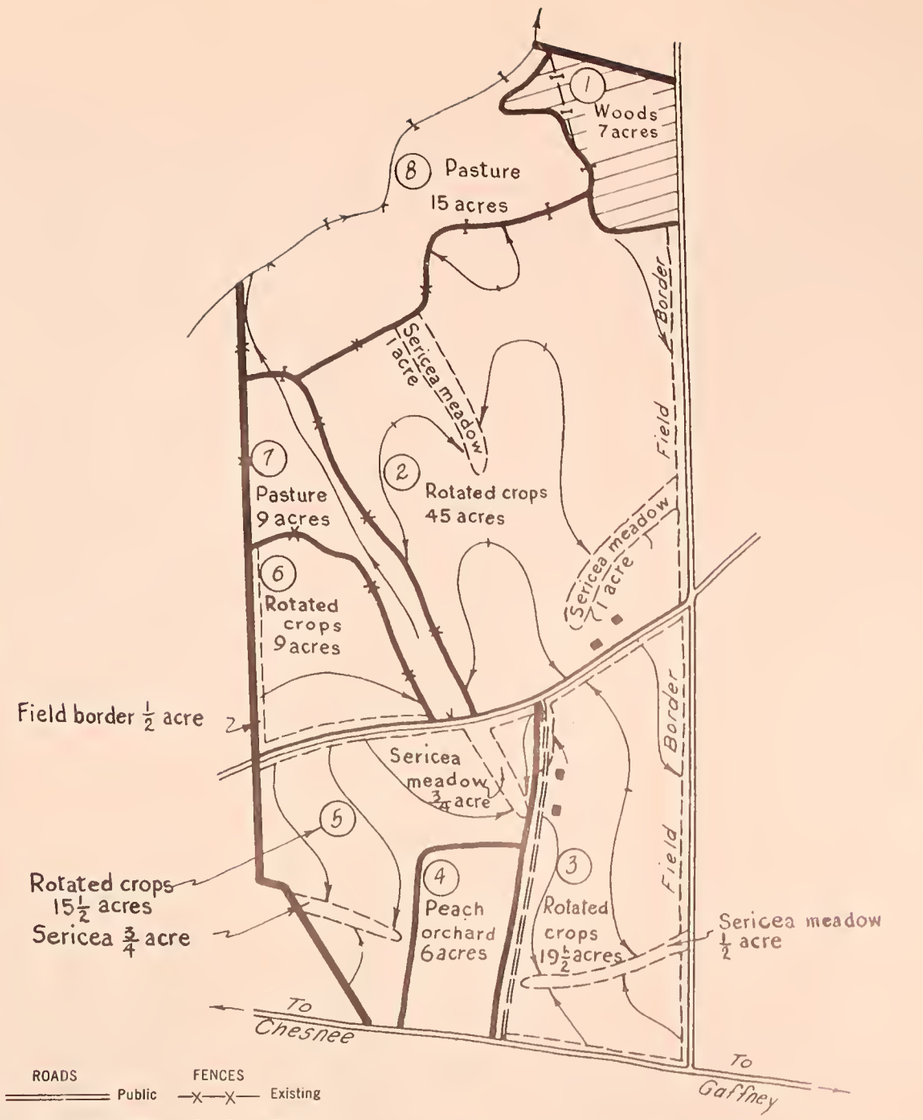
Class IIIw. Level leached fine sandy loam with very heavy dense subsoil. Subject to standing water during wet spells. Good pasture land; drainage recommended. (32-3-2)

Class IVe. Moderately steep brownish-red sandy clay land with slight erosion or smooth sloping red sandy clay land with serious erosion. Recommended for kudzu, sericea, or pasture. Can be used for small grain and lespedeza. (35-11-3, 38-8-4⑦)

Class Vw. Level wet land with poor subsoil drainage. Best use: pasture. (5-2-2)

Class VIe. Steep brownish-red sandy clay land with slight erosion. Best use: kudzu, sericea, pasture, or woodland. Too steep for cultivated crops. (35-20-3, 35-17-2)

0 500' 1000' 1320'



ROADS — Public; Farm
FENCES — Existing; New

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE — SOUTHEASTERN REGION
H. H. Bennett, Chief — T. S. Buie, Regional Conservator

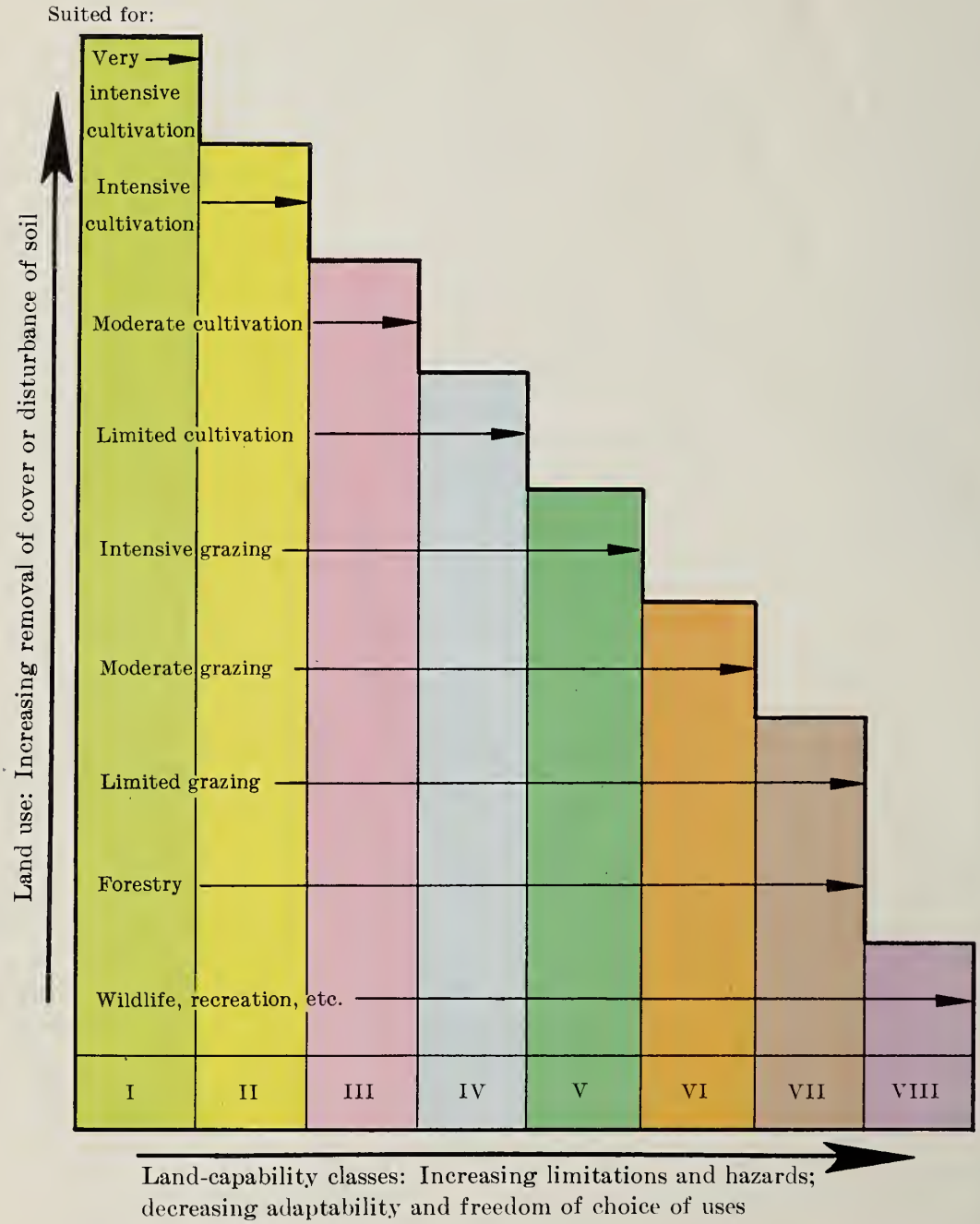
LAND USE MAP

FOR: CHEROKEE SOIL CONSERVATION DISTRICT, SOUTH CAROLINA

Work Unit:	Cherokee County
Owner:	Jonah Blackwell and Elijah Blackwell
Address:	
Operator:	
Address:	
Scale:	1" - 660'
Location:	10 miles northwest of Gaffney on Chesnee Highway.

AGR-SCS-BELTSVILLE, MD. 1929 JULY 1950

Relation of land limitations and land-capability classes to safe land use



The strip-cropped fields are Class III land; the wooded hills, Class VII.

Level, Class I land in the foreground; Class VIII land in the background.

This land is Class V land because it is wet and cannot be satisfactorily drained for cultivation.

part of it is too steep for regular cultivation primarily because of the danger of erosion. Generally speaking, it can be cultivated safely perhaps 1 year in 6; in the other years its best use is for pasture or hay. Some large areas are too dry, without irrigation, for dependable use for crop production.

Class IV land, then, is only fairly good for crops other than grass. As a rule it is good grazing land and where rainfall is adequate it is good forest land.

Class V land is nearly level and not subject to erosion. Because of wetness, climate, or some permanent obstruction like rock outcrops, it is not suited for cultivation. The soil is deep, however, and the land has few limitations of any kind for grazing or for forestry use. Good management is of course needed for satisfactory production with either grass or trees.

Class VI land is not suitable for any cultivation, and it is limited somewhat for grazing or forestry by such features as shallow soil or steep slopes. Wherever the rainfall is adequate for crop production, the limitations of Class VI land are most likely to be steep slope, shallow soil, or excessive wetness that cannot be corrected by drainage to permit use for crops. In arid and semiarid regions lack of moisture is the principal reason for putting land in Class VI. This is good land for forestry or for grazing, although not so good as parts of the cultivable land classes.

Class VII is not only unsuited to cultivation but has severe limitations for use for grazing or for forestry. It requires extreme care to prevent erosion. In rough timbered areas its use for either grazing or lumbering requires special care.

Class VIII land is suited only for wildlife, recreational, or watershed purposes. Usually it is extremely arid, rough, steep, stony, sandy, wet, or severely eroded. Rocky foothills, rough mountain land, bare rock outcrops, coastal sand dunes, much marsh and swamp land, and very arid land not suited for any grazing are examples of Class VIII land.

MAP TELLS MORE THAN LAND-CAPABILITY CLASSES

Physical features of the land that make its use difficult or risky determine the land-capability class. These physical features are of several different kinds. Some land is subject to impoverishing erosion if it is not protected. Other land is naturally wet, so that drains must be installed or maintained if crops are to be grown. Some land is shallow or droughty, or has other soil deficiencies. Still other land occurs in a climate where moisture often is not enough to grow a crop. These four kinds of land limitations make up the four possible subclasses of land within each of the land-capability classes.

Within Class III land, for example, all four of these land-capability subclasses may occur. All Class III land is rather severely limited in its use, although it is suited for regular cultivation. Three of the subclasses—sloping land, wet land, and sandy land—are often found in a single county. Sometimes all three are found on a single farm. They are suited for different crops and should be managed in different ways. The land-capability map shows the subclasses. It also shows, by means of the mapping symbols, significant variations in the subclasses.

HOW TO USE A LAND-CAPABILITY MAP

A farmer receives with his conservation plan a land-capability map like the one on page 8. This map shows a farm of 124 acres in the Piedmont section of South Carolina. The outline of the farm and the location of the roads and streams are shown in black. The

two dwelling houses on the farm are also shown in black. Woodland is clearly visible as a dark hazy color. Old terraces in some of the cultivated fields can be seen also.

Land-capability classes are shown by the standard capability colors. The small area of Class I land along the stream (shown in green) would be excellent land for crops but is used for pasture because of the wetness of adjoining land. Another 15-acre pasture includes the flat, wet land shown farther down the stream, together with an area of Class VI land too steep for cultivation.

This farm includes a large acreage of Class II and Class III land. Most of the Class II is gray, well-drained sandy land with a slope of between 3 and 5 percent. One area, used for peaches, consists of brownish-red sandy clay having a 3-percent slope. Most of the Class III land is also brownish-red sandy clay land, but lies on slopes of from 4 to 7 percent. Thus it is more subject to erosion than the Class II land. This is farmed in a good crop rotation for soil protection and for soil building. Terraces lead the water off gradually into safe stabilized outlets. All waterways are protected with sericea lespedeza. Besides protecting the outlets this crop furnishes several cuttings of good hay annually.

The land marked IIIw drains slowly during wet spells because of its heavy, slowly permeable subsoil. It could be used for crop production with drainage, but on this farm its best use is for pasture.

The farm includes three areas of Class IV land, all too steep for safe cultivation except occasionally and with extreme care. One of these areas remains in woods and one makes up part of the new pasture. The third one, located along the road, is being cultivated but it would be better in permanent pasture.

WHO USES THE LAND-CAPABILITY MAPS?

Maps and other information from the land-capability inventory are available to anyone who wants to use them. Farmers, ranchers, and soil conservationists

This land is Class V because the rock outcrops make it unsuited for any cultivation.

Three kinds of Class III land: Sloping land subject to erosion (left), land limited by a slowly permeable subsoil (center), and sandy land with low water-holding capacity (right). The sloping land needs protection to prevent formation of deep gullies; the sandy land needs practices for moisture conservation. Shallow ditches between the buckwheat beds in the wet land help carry off surface water.

use them most. Every farm or ranch conservation plan is based on a land-capability inventory. A soil conservationist will tell you that the use of land within the limits of its capability is an essential part of sound soil and water conservation. Some 10,000 technical men of the Soil Conservation Service discuss land capability in specific terms with farmers and ranchers as part of their regular work. The governing boards of the more than 2,300 soil conservation districts also talk land capability and good land use to their neighbors in the districts that they manage. As a result of this widespread use of scientific land information among farmers and ranchers, many other people are learning to look for and use the information on land-capability maps.

Suppose, for example, you were planning to buy a farm. The colored land-capability map, if available, tells you at a glance what land is suited for cultivation, and what land is not. It also tells the degree

Two views of deep, medium-textured soil that is Class III land because rainfall often is not enough for a crop. The field on the left is protected by a fair stand of wheat in February and prospects of a successful crop are good. At the same time soil was blowing from an unprotected field across the road (right).

of difficulty or risk you will experience in using the land. You learn this much by a mere glance at the colors which distinguish the land-capability classes from one another. You also want to know something about why the land is rated as it is. Some Class II land or Class III land, for example, may be sloping and subject to erosion; other kinds may be in need of drainage: still other kinds may be sandy and of limited moisture retentiveness and fertility. If land-capability subclasses are shown, the subclass tells you which of these conditions predominates. Symbols show the kind of soil, the steepness of slope, and the degree of soil erosion. You should examine the farm yourself, but you can learn a great deal about it by studying the land-capability map.

Real estate dealers in many localities are finding that the land-capability inventory helps them to inform prospective purchasers about land that is offered for sale. Individuals and organizations often use land-capability maps to help measure the soundness of proposed investments. Land appraisers in many States and counties are interested in the land-capability inventory as a source of land facts. Government agencies find the land-capability inventory useful in administering public lands and in carrying out financial and credit programs related to land and water. Banks and other credit institutions frequently turn to land-capability information dealing with individual farms and larger areas to guide them in loans on land and in advancing general economic improvement.

Engineers, both private and public, are using land-capability information in flood-control, drainage, irrigation, and rural electrification operations, and in the location and construction of airports, radio installations, dams, and reservoirs. Highway departments in many States are using land-capability maps to plan and locate roads, and to locate gravel, sand, and other construction materials.

Telephone and telegraph companies often ask for land-capability information to guide them in locating new lines and to help them control erosion where cables are underground. Oil and gas companies use the maps to help control erosion along their pipelines.

Manufacturers of farm and automotive equipment have used land-capability maps to locate potential markets for their products. Processors of food use the maps to guide them in locating plants and in purchasing land suitable for growing the crops they use.

Game and fish organizations and sportsmen's groups are turning to land-capability maps to find ways for improving wildlife habitats; as a direct guide in such activities as planting food crops for game birds and

If he has a land-capability inventory of his farm, an irrigation farmer will know whether he can "level" his land without leaving the root zone too shallow for the crops he plans to grow.

animals; and in locating suitable sites for wildlife refuges, hunting preserves, and game farms.

Educators and students in some localities are requesting land-capability maps and data to provide material for assisting them in the development of their publications, scientific papers, talks, and classroom study in agriculture; and in economics and other subjects where land condition and crop production are involved. The inventory also aids in the location or consolidation of schools.

Agricultural research stations use land-capability maps and data as a basis for their investigations and publications dealing with agricultural problems. Many of the State agricultural experiment stations plan to publish results of the land-capability inventory as work in the various counties is completed. The land-capability inventory is carried out in cooperation with these stations, and fits in with their research.

HOW TO GET THE MAP YOU WANT

As already mentioned, an inventory has been made of the land capability of about one-fourth of the farm and ranch land of the Nation. Land-capability maps of the areas covered are available to responsible individuals and organizations who want to know about the land.

The individual land user gets a copy of the map of his land along with his farm or ranch conservation plan. He should apply to the governing board of his soil conservation district or to the work unit headquarters of the Soil Conservation Service. He can also buy a copy of the field sheet, which usually covers some of the surrounding land as well as that of his own farm. The soil conservationist will see that he gets, along with the map, a legend that explains the symbols on it.

If a farm or ranch is in a soil conservation district and has not been mapped, the land user can obtain a land-capability inventory by making application to his soil conservation district for help with his farm or ranch conservation plan. The farm or ranch will then be mapped as soon as the work can be scheduled.

The land-capability inventory has been completed in several soil conservation districts. Some of them are of county size and some are smaller. As mapping is completed for a county or other area of convenient size,

A land-capability inventory will tell a farmer whether he can profitably drain wet land before he spends money for expensive drainage work.

the Soil Conservation Service maintains copies of the land-capability maps, with a legend that explains the use of the symbols and colors, at its local headquarters so that people who want them can find them easily. Usually copies may also be consulted in the county agent's office, and sometimes in other places.

The usual scale of the land-capability map is 4 inches to the mile. This means that the map of a 160-acre square farm would be 2 inches on a side. Many of the maps furnished to farmers are on a scale twice this size, or 8 inches to the mile. At 4 inches to the mile, the map of a county 24 miles by 30 miles would take up a wall space 8 by 10 feet. Some want a map of smaller scale for use in connection with such work as highway construction and location of rural electric lines. Such maps of course must leave out many details, and so are not adequate for planning conservation work on individual farms. Small-scale land-capability maps have been published for all the counties in Kansas, but not elsewhere. State-wide land-capability maps on a still smaller scale, based on rapid general surveys, have been published for Nebraska, Idaho, Washington, California, and Oregon.

INVENTORY MEANS MUCH TO THE NATION

The land-capability inventory is primarily to help farmers and ranchers plan and carry out conservation work on their lands. It is also useful to other people who work with farmers or who want to know more about the land. The facts of the inventory, when added up and summarized, also furnish information about the size and capacity of the Nation's agricultural plant.

Neither land facts nor sound conservation plans can be obtained by any easy or short-cut methods. If you are a farmer or rancher you need a map of your land which shows clearly what each kind of land is like and what it will best do. The map of a farm in an adjacent soil conservation district, or even of one just across the fence line, is of little help in fitting conservation measures and structures to your farm if it has not been mapped.

An individual land-capability map furnishes exact information about the land. It helps the farmer or rancher proceed rapidly if he has the help of a trained, experienced conservationist, to choose good land uses and apply the right combination of conservation practices at the right places.

The land-capability inventory has been carried far enough to show that the United States has only about 460 million acres of really good land suitable for production of the ordinary crops. Much of this is Class II and Class III land which must have protection or special care if it is to be successfully farmed on anything like a permanent basis. Large acreages are well suited for grazing, forestry, and wildlife, and will give good yields of these products if each kind of land is used within the limits of its capability, and is treated so that it will be maintained and improved with use. The complete land-capability inventory will show these acreages, their location, and other indispensable facts about the Nation's land. More important to most of us, however, it will give each farmer and rancher the land information that will enable him, with the necessary technical help, to plan and apply on his own land the conservation measures necessary for its—and the Nation's—permanent security.

The cover shows how the soils man records kind of soil, percent of slope, and degree of soil erosion on an aerial photograph. The farm that is partly mapped is the one shown on pages 8 and 9.

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